

TITLE OF THE INVENTION

METHOD FOR OVERWRITING DATA IN LINKING LOSS AREA

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Korean Patent Application No. 2000-71030 filed on November 27, 2000, in the Korean Industrial Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present invention relates to a method of recording and/or reproducing optical data, and more particularly, to a method of overwriting data in a linking loss area.

2. Description of the Related Art

[0003] Since basic recording units of a digital versatile disc-rewritable (DVD-RW) are positioned one after another in a continuous series, in contrast to those of a DVD-Random Access Memory (DVD-RAM) which are divided by physical identifier (PID) areas or buffer fields (extra areas allocated to correspond to a requirement for controlling a spindle motor accurately), it is required that a recording-start point of each basic recording unit in a DVD-RW be precisely located. Here, the basic recording unit of the DVD-RAM may be a sector and the basic recording unit of the DVD-RW may be an error correction code (ECC) block.

[0004] Since the basic recording units of the DVD-R and the DVD-RW, which have the same physical formats, are positioned in a continuous series as described above, when data transmission or recording is momentarily discontinued or subsequently recommences, the DVD-R and the DVD-RW use a linking scheme in which an extra area of a next recording-start point is allocated. The sizes of a linking area which is applied to the linking scheme are 0 kilo bytes (KB), 2KB, and 32KB.

[0005] FIGS. 1A through 1C are schematic diagrams showing conventional data linking methods. FIG. 1A shows the data structure of a 2KB linking method, FIG. 1B shows the data structure of a 32KB linking method, and FIG. 1C shows the data structure of a 0KB linking method. In the conventional linking methods, if the data type in sector information is '1b', it indicates that the next sector is a linking loss area. The linking loss area has no effective data

and only stores dummy data, that is, '00h'. Therefore, main data recorded in the linking loss area can be replaced with '00h' regardless of reproducing data and therefore correction of an ECC block can be improved.

[0006] FIG. 1A shows a data structure in which the size of a linking loss area is 2KB, and FIG. 1B shows a data structure in which the size of a linking loss area is 32KB. If user data does not fill an entire ECC block 1, padding data is recorded in the remaining part of ECC block 1. If the data type of the last sector of ECC block 1 is '1b', the first sector (2KB) of an ECC block 2 or the entire ECC block 2 (16 sectors = 32KB) becomes a linking loss area according to a linking type, and padding data is recorded in the linking loss area.

[0007] FIG. 1C shows a data structure in which 0KB linking is performed after performing 2KB linking or 32KB linking. That is, FIG. 1C shows 0KB link recording in an ECC block 2 (the 32KB linking loss area) of FIG. 1A or 1B, and user data is recorded from the first sector of the ECC block 2 in which 0KB linking is performed. However, if the data type is '1b' in the last recording sector of ECC block 1 of FIG. 1C, the next sector, that is, the first sector of ECC block 2, may be taken for a linking loss area and user data can be replaced with '00h'. Therefore, an error may occur in this sector, and as a result an ECC error occurs in the entire ECC block 2, and accordingly, data in the ECC block 2 cannot be reproduced.

SUMMARY OF THE INVENTION

[0008] Accordingly, it is an object of the present invention to provide a method of overwriting data in a linking loss area in which data is recorded in blocks starting from a current block or from a previous block according to whether or not a first sector of a block in which data is desired to be recorded is a linking loss area.

[0009] Additional objects and advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

[0010] The foregoing and other objects of the present invention are achieved by providing a method of overwriting data in a linking loss area when predetermined data is recorded on a recording medium in which a predetermined size of an error correction code (ECC) block is divided into a plurality of sectors, the method comprising determining whether or not the first sector of a block in which it is desired for data to be recorded is a linking loss area, and if it is

determined that the first sector is a linking loss area, reading the previous block; modifying data type identification information of the last sector of the previous block after completing reading the previous block; and recording data in blocks starting from the previous block.

[0011] It is preferable that in determining whether or not the first sector of a block in which it is desired for data to be recorded is a linking loss area, if it is determined that the first sector of the block in which data is desired to be recorded is not a linking loss area, data is recorded in blocks starting from the current block.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] These and other objects and advantages of the present invention will become more apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompany drawings of which:

FIGS. 1A, 1B, and 1C are schematic diagrams of the data structure in a conventional data linking method;

FIG. 2 is a block diagram of an ordinary digital versatile disc- recording and/or reproducing (DVD-R/RW) apparatus;

FIG. 3 is a flow chart showing the method of overwriting data in a linking loss area according to the present invention;

FIG. 4 is a schematic diagram showing the data structure of a data identification (ID) area in which data type information is stored; and

FIG. 5 is a schematic diagram explaining the effect of the method of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to the like elements throughout. The embodiments are described below in order to explain the present invention by referring to the figures.

[0014] The ordinary DVD-R/RW apparatus shown in FIG. 2 has a disc 20, a pickup 21, an auto laser power control (ALPC) 22, a radio frequency-amplifying unit 23, a data processor 24, a host interface 25, a host 26, a servo processor 27, a motor and driver 28, and a microcomputer (MICOM) 29.